EMV Transit FAQ

A series of answers to users' most frequently asked questions about the most modern and popular transportation payment system.

Bank cards in public transport

This document, on the other hand, is extremely practical…

For many good reasons, the modern world is increasingly oriented towards various forms of **electronic money** as the possibility of making **micro-payments** with a simple gesture using **contactless bank cards** such as **MasterCard, Visa** and **American Express**, **bas**ed on the EMV contactless standard of EMVco, a standardization company composed of Europay, MasterCard and Visa, becomes more widespread.

In relatively recent times, their use has also become popular in the world of **public transport** and many companies have understood the advantages of allowing **direct access** to the network by simply presenting a bank card.

With the **ET-PASS** system, AEP is at the absolute **forefront** in this field and there are now many cities where it is possible to use this practical form of payment, which is highly appreciated by customers.

We have already made available two **quite "technical"** publications on the subject:

- 740561 **EMV cards in public transport**
- 740562 **Understanding EMV Bank Card Security at a glance**

This document, on the other hand, is **extremely practical** and tries to answer the **most common questions** that users and companies often ask us.

The Transit model

The use of bank cards in public transport is based on **derogations** from the rules normally laid down, compliance with which would not be possible in the particular application under discussion. Firstly, it is **not conceivable** to be able to **digit PIN**, as used with normal POS, which is also required from time to time for contactless transactions.

These transactions then require that the **amount** be **known** at the time of presentation of the card. In the case of public transport, however, it is better that the effective amount is calculated only **a posteriori**, so as to apply the **most convenient tariff** according to the trips (**best fare**). Finally, the **magnetic field** of the reader must always be active, whereas in normal POS it is only activated when the card is required. These **derogations** are granted only by operating in accordance with the **Transit model**, introduced by Transport for London, after having obtained the **homonymous certification** by the Acquirer, which, however, is valid only for that specific Acquirer and is granted only after **compliance** with many **security requirements.**

What is reported in the following pages relates **only to Transit certified systems**, such as those implemented by AEP.

Which cards can I use?

The Transit system can be used by **most** bank cards belonging to the **Mastercard**, **Visa** and **American Express** circuits.

It is not necessary that the card has gold contacts, which many incorrectly call chip, but it must be equipped with the **contactless interface**, indicated by the **symbol** of the waves, circled in red in the figure at the side.

There are still some cards in circulation that do **not meet** the Transit specification and are therefore not accepted. In this case, contact the **Issuer** (your bank) to have them enabled or replaced.

Prepaid cards: to be sure that you can access the service with your prepaid card, you must check with the Issuer (your bank). The easiest way, also in this case, is to try.
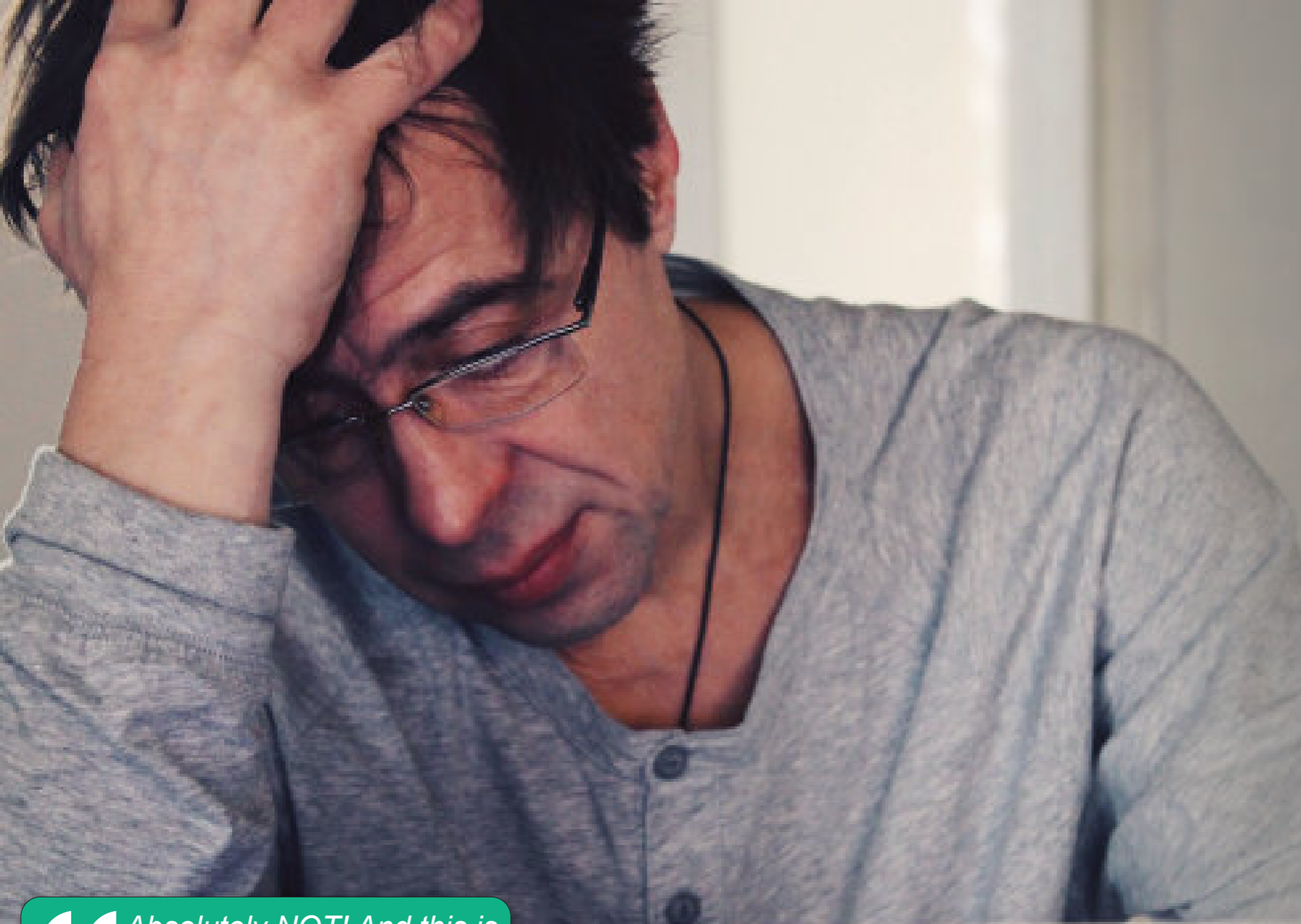
Yet another registration?

Absolutely NOT! And this is one of the **most appreciated** aspects by customers. Wherever you may arrive from in the world, you can use **public transport immediately,** without even having to find out which ticket you need.

Registration is in fact completely **optional** and serves only to access the **traveler portal** (see later), from which you can check the accuracy of the charges that have been applied to your card. It is very simple and quick and can also be done **later**, when you have time and are comfortable to do it, but, we repeat, it is **not at all necessary** to use the service.

The whole Transit system is **originally conceived** to be as **practical**, **simple** and **fast** to use as possible and this is one of the reasons behind its **extraordinary success**.

Can I use the smartphone?

There are now various services, such as ApplePay, that allow a contactless bank card to be **virtualized in the smartphone** or the **smartwatch**.

The smartphone or smartwatch equipped with these services can be used, in Transit systems, exactly like the card, keeping in mind, however, that it is **not possible to alternate** between card and mobile device in the same trip. For example, if you enter the subway with your smartphone, you cannot use your card to exit (and vice versa). This is because the smartphone **doesn't use the "real" PAN** (the 16-digit number on the card), but a **temporary substitute** for it. It is therefore impossible to reconcile the two "taps" for fare calculation.

Verification by inspectors may involve different operating modes (see question "how does the control take place?").

It should be remembered that the mobile device, in this mode, **emulates** in all ways, a contactless EMV bank card, but to do so requires a particular **physical interface**, called **NFC** (Near Field Communication). This function requires that the device is equipped with this interface, that it is enabled and that the appropriate App is installed. We recommend that you **make a test payment** in any commercial establishment before boarding the bus, after installing the App for the first time.

> *..a contactless bank card in the smartphone or the smartwatch…*

What fare am I going to pay?

The Transit system has been designed to allow the Company to apply the **possible best fare** on the basis of the trips effectively made by the passenger. Let's take, **for example**, a very common case where the fare for a 60-minute urban trip is €1.50. If you take the first bus at 15:05, you can continue to make transfers until 16:05, without receiving further charges. You can then continue to take other buses, with the same rules. But what happens if you make **a lot of trips**? Even if your effective consumption is €10.50, the system **automatically applies the cheapest fare**, for example the daily rate of only €6.00. **Simple**, **quick** and completely **automatic**!

Obviously this is just an example, each Company may have the most different rates, but they are usually published and known by every traveler.

However, it is important to **understand the paradigm shift**. When you present your card, in practice you are not making a payment, but only **declaring your willingness** to pay the bill resulting from the application of the best fare. For this reason it is **essential to validate at each access**.

What amount is blocked on my card?

As mentioned, the **tap** (i.e. the presentation of the card to the validator) should not be understood as a payment but, instead, as the **willingness** to make the payment at the end of the evening.

Some circuits carry out an operation, called **pre-authorization**, with which they reserve a certain amount as a guarantee, variable also according to the agreements with the transport Company. For example, if you have a Maestro card*, at the time of the tap you may receive a message informing you that a pre-authorization has been performed for a **higher** value than the cost of the ticket unit (typically from 5 to 10 euros). This does not mean, however, that this amount has been withdrawn, but simply that it has been **temporarily allocated** in a virtual piggy bank

Don't worry, though: at the end of the day, only the **effective amount** will be debited, corresponding, as we have expressed several times, to the most convenient fare for the traveler, and the pre-authorization will be removed.

As we have seen, we are talking about **modest amounts**, which are usually absolutely **irrelevant** compared to the credit of the card. In the case of prepaid cards, however, this should be taken into account.

(*) Usually Visa does not block amounts, while Mastercard reserves the value of the minimum ticket.

What happens if I "tap" multiple times?

No problem: the logic of the system, which always applies the best fare, is such that it allows the **calculation algorithm** to put the various taps in sequence and **filter** out all unnecessary ones.

But what if I get on with my family? If the previous question implies "how can I validate for multiple people?", the answer is ...that's not how it's done. The multi-passenger function **was not present** in the original Transport for London model and was **introduced by AEP**, but it is subject to the choice of the transport Company and is usually activated with a **dedicated button** on the validator. **Several operating modes** are possible. For example, you may be asked to press a key to select the number of passengers before tapping, or a sequence of key/tap, key/tap etc. **Ask your Company** if the function is enabled and how to use it.

But is it safe?

When you talk about your bank card, a **very cautious** attitude is more than justified. Well: AEP systems offer **maximum security**, and not just because of a simple declaration on our part, but because they are **certified** by the best **competent organisations**. In fact:

- the **readers** incorporated in the validators are certified **PCI-PTS** level 5.x or higher and therefore guarantee the best possible level of physical security, just like the POS in the stores;
- the area where the card is presented is **completely separate** from that of the **QR-code** optical reader, guaranteeing that the camera cannot record any writing on the card (e.g. PAN or CVV);
- the entire chain from the reader to the acquirer is **end-to-end** certified, thus guaranteeing the entire path of information from the reader to the banking system.

All this should not make you **lower your guard**: always scrupulously follow **all the indications** of the transport company, for example regarding behaviour towards verification personnel (inspectors).

> *always scrupulously follow all the indications of the Company*

How to keep everything under control?

What are the **tools** that allow me to be sure that everything is working correctly? Obviously the charges will be visible through the **bank's portal**, but only after a certain **period of time**, and in any case in the form of a **single aggregate entry** (in the case of card + smartphone, you may have two separate charges). Many banks also provide an **SMS service**, which informs of the charges, but these are often only activated beyond a certain amount

For this reason, AEP systems also offer the **traveler's portal**, which allows you to **monitor the situation** at any time. It can be accessed via a **link** that the company makes available on its corporate website, after a very quick registration.

Through the traveller's portal it is possible to examine **every single tap** made and therefore verify the correctness of the charges billed.

The traveler portal, like every part of the system, operates in **complete security**. Not even AEP itself is able to view the personal information of customers.

What to do in case of problems?

It is possible that, in certain circumstances, not everything goes as planned. The most common case is when, taping the card, you don't get the green **"come in"** light but the red **"stay out"** light.

When you receive the rejection **always**, from the first time, it is very possible that your card is **not enabled** for Transit service. In this case, please refer to the question "Which cards can I use" on page 6.

If, on the other hand, the card **worked** before and now you always receive the **red light**, it is very likely that your card has ended up in the **black list** of blocked cards, for example due to lack of funds (see the answer to the question **What is the black list?** in the following paragraph).

If you **don't find the charge** on your account after a few days, it could be because... maybe you **really haven't paid**, e.g. due to lack of funds. Again, it's likely that your card has been **blacklisted**.

> *If your card is blacklisted you are potentially subject to a fine…*

What is the black list?

The first time a valid card is seen, it always receives the **green light**, as **trust is granted** to its holder. After a short time, the transaction is transferred to the center and the **validity of the card** and its **credit** is checked. If the result is negative, the card is placed on the **black list**, the list of cards not allowed to be used, distributed periodically to all **validators** and also used by controllers. The reasons for being in the black list can be more than one: for example it is a **stolen** card, **blocked**, with **insufficient** funds, or that has not **fulfilled**, for some reason, its obligation to pay the amount due to the transport Company. It is therefore possible to end up on the black list even **involuntarily**.

The system, however, tries to **get us out** of this condition, where it can be remedied, by trying several times, in the following days, to **collect the amounts due**. If the recovery is **successful**, the card is **removed from the black list** and becomes **usable** again. After a certain number of days (usually 30) these attempts **cease**. You will then have to contact the Company to get off the blacklist, after you have paid your debt.

What can the inspector ask me?

Remember that as a traveler you have only **two obligations**: to have **tapped on access** and that your card **is not blacklisted**. Depending on the choices made by the company, the inspection can be carried out in different ways. The most common techniques are as follows:

- **by voice -** the inspector asks you for the last 4 digits of your card's PAN (the 16-digit number on the front of the card). This solution is not feasible with cards that do not have the PAN printed on them, nor with smartphones;
- **at the validator** - the inspector asks you to present your card to the validator after pressing the Info button: the machine responds with the last validation operations performed..
- **with the specific terminal** - the inspector is equipped with a portable device, on which he will ask you to tap your card.

Read well the conditions of use of the Company and keep in mind the following cautions:

- **never give** your card to anyone;
- **never enter your PIN**: no operation within the Transit system requires its input;
- **only to the inspector**: present your card only to the person you are sure is the authorized inspector of the Company
- **protect the CVV**: in no case is it necessary to communicate the CVV security code (the one on the back of the card).

> *Read well the conditions of use of the Company…*

Can I use it only in urban areas?

The **Transit** system, due to its operating logic, allows you to apply the correct tariff provided that you know the **necessary information** to be used as input to the related **calculation algorithm**. In simpler words: you have to give it the **correct data** so that it can calculate the **right tariff**.

In the case of the **subway**, this is quite **easy**, if the tap is required, not only **at the entrance**, but also **at the exit**.

There are several possible ways of tariff calculation in the **suburban area**:

- **tap on entry + tap on exit**
- indicate **your destination** (location, zone, etc.) at the time of entry by **interacting with the validator**.

Ask the Company how to use your bank card in the **suburban** area, where this is foreseen.

Conclusions

It's really hard to imagine a **simpler** and more **convenient** public transportation payment system than **EMV Transit**. Everything in this publication can be summarized as follows: **get a valid card and "tap" at every access**. Everything else is automatic.

We hope that the information we have provided you with will be useful and will have clarified all the particularities of this wonderful system.

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